



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/872,920	06/02/2001	Ravi Chandra	4906.P078	4641
8791 7590 03/25/2010 BLAKELY SOKOLOFF TAYLOR & ZAFMAN LLP 1279 OAKMEAD PARKWAY SUNNYVALE, CA 94085-4040				
EXAMINER				
SHINGLES, KRISTIE D				
ART UNIT		PAPER NUMBER		
2444				
MAIL DATE		DELIVERY MODE		
03/25/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/872,920
Filing Date: June 02, 2001
Appellant(s): CHANDRA ET AL.

Olivia J. Tsai
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 2/1/2010 appealing from the Office action mailed 8/27/2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,983,317	BISHOP et al	1-2006
5,440,726	FUCHS et al	8-1995
6,694,450	KIDDER et al	2-2004

5,938,775

DAMANI et al

8-1999

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Response to Arguments

Applicant's arguments filed 5/4/2009 have been fully considered but they are not persuasive.

Regarding the rejection of claims 1, 12 and 28 (and their dependents), Applicant argues that *Bishop et al* fail to teach the claimed limitations of: "clearing the first set of data by the second network process if a time period expires, the time period beginning upon receiving the notification of death of the first network process" and "synchronizing by the second network process, the first set of data with a second set of data if the time period does not expire, the second set of data received from the first network process after the first network process restarts".

Examiner respectfully disagrees. *Bishop et al* clearly teach that a heartbeat period and an eviction period that reaches timeout wherein the heartbeat expiration indicates that the process is dead, then the eviction time period is the "period before the Engine Monitoring Manager component responds by removing the engine from its list" *col.101 lines 52-58, col.102 lines 56-53, col.103 lines 10-23, col.104 lines 62-66, col.130 lines 59-61*). Therefore upon notification of death by the heartbeat indicator, the eviction period is started for clearing date data. Furthermore, *Bishop et al* clearly teach the synchronization process achieved wherein if the eviction time period does not expire, the data from the engine is merged and updated with the engine monitoring manager (*col.52 lines 27-61, col.102 lines 46-53, col.103 lines 25-62, col.104 line 62-col.105 line 17*). The restart/recovery takes place when the process goes from being off-line to being on-line by sending a heartbeat, and the heartbeat being received before the heartbeat

timeout period is over (*col.104 line 25-col.105 line 17*). Applicant's arguments are therefore unpersuasive, and the rejections are maintained.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by *Bishop et al* (US 6,983,317).

Regarding claims 1 and 28, *Bishop et al* teach a computer implemented method and machine-readable medium comprising:

- receiving by a second network process a first set of data from a first network process (*col.98 lines 1-26, col.102 lines 18-66—engine monitoring manager receives heartbeat data/status from an engine*);
- receiving a notification of death of the first network process (*col.101 lines 15-25; col.103 line 64-col.104 line 14—receiving notification that the engine has failed*);
- death of the first network process (*col.104 lines 15-23—no heartbeat from the engine*);
- clearing the first set of data by the second network process if a time period expires, the time period beginning upon receiving the notification of death of the first network process (*col.101 lines 52-58, col.103 lines 10-23, col.104 lines 62-66, col.130 lines 59-61—heartbeat period reaches timeout and eviction period upon notification of death expires and engine monitoring manager removes the engine from its list*); and

- synchronizing by the second network process, the first set of data with a second set of data if the time period does not expire, the second set of data received from the first network process after the first network process restarts (*col.52 lines 27-61, col.102 lines 46-53, col.103 lines 25-62, col.104 line 62-col.105 line 17—if the eviction time period does not expire, the data from the engine is merged and updated with the engine monitoring manager*).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4-8, 10, 11, 16-27, 29, 31-35 and 37-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Fuchs et al* (USPN 5,440,726) in view of *Bishop et al* (US 6,983,317).

- a. Regarding claim 16, *Fuchs et al* teach a network element comprising:
- a first processor to execute a first and second network process, the first network process to generate a first set of data before restarting and a second set of data after restarting, the second network process to synchronize for itself the first and second set of data (*col.10 lines 15-20*);
 - the second network process to synchronize the first set of data with a second set of data generated by the first network process before restarting upon determining a time period has not expired, (*col.11 lines 22-66, col.13 line 38-col.14 line 47*); and
 - a second processor coupled to the first processor, the second processor to process a set of traffic using the first set of data before the first network process restarts and a third set of data after the first network process restarts (*col.10 line 14-col.11 line 18*).

Fuchs et al teach the death of a network process, yet fail to explicitly teach synchronize for itself the first and second set of data upon determining a time period has not

expired, the second network process to clear the first set of data upon determining the time period has expired, the time period beginning upon receiving a notification of death of the first network process. However, *Bishop et al* teach receiving notification that the engine has failed, the engine monitoring manager removes the engine from its list when the heartbeat period reaches timeout and eviction period upon notification of death expires; but if the eviction time period does not expire, the engine recovers and its data is merged and updated with the engine monitoring manager (*col.52 lines 27-61, col.101 lines 15-25 and 52-58, col.102 lines 46-53, col.103 line 10- col.104 line 23, col.104 line 62-col.105 line 17, col.130 lines 59-61*).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the system of *Fuchs et al* with *Bishop et al*'s engine process notification system for clearing the first set of data upon receiving the notification of death, because this prevents the system from further storing or processing invalid data because which may corrupt the system and compromise the integrity of the content communicated in the processes.

b. Claims 20 and 24 contain limitations that are substantially similar to claim 16 and are therefore rejected under the same basis.

c. Claims 39 and 43 contain limitations that are substantially similar to claims 1 and 16 and are therefore rejected under the same basis.

d. Regarding claims 2, 27 and 29, *Bishop et al* teach the computer-implemented method of claims 1 and 28, *Fuchs et al* further teach the method further comprising indicating the first set of data as stale upon receiving the notification of death (*col.9 line 11-col.11 line 18; Bishop et al—col.52 lines 36-39*). It would have been obvious to one of ordinary skill in the art at

the time the invention was made to combine the system of *Fuchs et al* with *Bishop et al* to indicate that the data is stale so that the data will not be transmitted to other processes, but identified as old or out-dated for subsequent discard.

e. Regarding claims 4 and 31, *Bishop et al* teach the computer implemented method of claims 1 and 28, *Fuchs et al* further teach the method wherein the first set of data and the second set of data are synchronized after a done signal is received (*col.10 line 14-col.11 line 18, col.25 lines 35-65; Bishop et al-col.52 lines 27-59*). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the system of *Fuchs et al* with *Bishop et al* to perform synchronization after a done signal because the done signal is an indication of completeness and that the process is not in a pending mode, but ready.

f. Regarding claims 5 and 32, *Bishop et al* teach the computer implemented method of claims 1 and 28, *Fuchs et al* further teach the method further comprising restoring a set of configurations to the network process after the first network process restarts (*Abstract, col.9 line 11-col.12 line 18; Bishop et al-col.105 lines 1-17*). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the system of *Fuchs et al* with *Bishop et al* to teach restoration of a set of configurations after the first process restarts, which is an obvious occurrence in the art wherein when the a process is restored, it also restores its associated configuration settings.

g. Regarding claims 6 and 33, *Bishop et al* teach the computer-implemented method of claims 1 and 28, *Fuchs et al* further teaches the method wherein further comprising clearing the second set of data if the time period expires and a done signal is not received (*col.8 lines 29-57, col.24 lines 33-43, col.27 lines 65-68*). It would have been obvious to one of ordinary skill in

the art at the time the invention was made to combine the system of *Fuchs et al* with *Bishop et al* to teach clearing the second set of data if the time period expires, to prevent corruption of the system with invalid/unaccounted data.

h. Claims 7 and 34 are substantially equivalent to claims 5 and 6 and are therefore rejected under the same basis.

i. Claims 8 and 35 are substantially equivalent to claim 2 and are therefore rejected under the same basis.

j. Claims 10 and 37 are substantially equivalent to claim 4 and are therefore rejected under the same basis.

k. Claim 11 and 38 are substantially equivalent to claim 6 and are therefore rejected under the same basis.

l. Regarding claim 17, *Fuchs et al* with *Bishop et al* teach the network element of claim 16, *Fuchs et al* further teach the method wherein the first processor comprises a memory to store the first, second and third set of data (*col.13 lines 53-58, col.14 lines 48-53*).

m. Regarding claim 18, *Fuchs et al* with *Bishop et al* teach the network element of claim 16, *Fuchs et al* further teach the method further comprising the first processor to allocate a first memory to the first network process and a second memory to the second network process (*col.13 lines 53-58, col.14 lines 48-53*).

n. Regarding claim 19, *Fuchs et al* with *Bishop et al* teach the network element of claim 16, *Fuchs et al* further teach the method further comprising the first processor to allocate a first memory to the first network process, a second memory to the second network process, and a

third memory to store the first set of data, the second set of data, and the third set of data (*col.13 lines 53-58, col.14 lines 48-53*).

o. Regarding claim 21, *Fuchs et al* with *Bishop et al* teach the network element of claim 20, *Fuchs et al* further teach the element wherein the first memory, the second memory and the third memory are main memory (*col.13 lines 53-58, col.14 lines 48-53*).

p. Regarding claim 22, *Fuchs et al* with *Bishop et al* teach the network element of claim 20, *Fuchs et al* further teach wherein the first memory, the second memory, and the third memory are mass storage (*col.13 lines 53-58, col.14 lines 48-53*).

q. Regarding claim 23, *Fuchs et al* with *Bishop et al* teach the network element of claim 20, *Fuchs et al* further teach wherein the first memory, the second memory, and the third memory are a set of regions of a memory (*col.13 lines 53-58, col.14 lines 48-53*).

r. Regarding claim 25, *Fuchs et al* with *Bishop et al* teach the network element of claim 24, *Fuchs et al* further teach wherein the second network element comprises: a first memory to store the first set of data and the synchronized set of data; and a second memory to store the second set of data (*col.13 lines 53-58, col.14 lines 48-53*).

s. Regarding claims 26 and 42, *Fuchs et al* with *Bishop et al* teach the system of claims 24 and 39, *Fuchs et al* further teach further comprising the second network element to clear the first and second set of data if a time period expires (*col.8 lines 29-57, col.24 lines 33-43, col.27 lines 65-68, col.28 lines 34-44*).

t. Regarding claim 40, *Fuchs et al* with *Bishop et al* teach the method of claim 39, *Fuchs et al* further teach wherein the timer is initialized upon receipt of the death notification (*col.11 lines 47-53; Bishop et al— col.101 lines 15-25; col.103 line 64-col.104 line 23*).

u. Regarding claim 41, *Fuchs et al* with *Bishop et al* teach the method of claim 40, *Fuchs et al* further teach wherein the death notification is based on an absence of a heartbeat from the second network process (*col.11 lines 44-66; Bishop et al— col.101 lines 15-25; col.103 line 64-col.104 line 23*).

Claims 12 - 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kidder et al* (US 6,694,450) in view of *Damani et al* (US 5,938,775) and *Bishop et al* (US 6,983,317).

v. Regarding claim 12, *Kidder et al* teach a network element comprising:

- a cross connect control module to host a first and second network process, the first network process to generate a first set of data after restarting and the second network process to synchronize for itself the first set of data with a second set of data generated by the first network process before restarting (*col.3 lines 42-52, col.3 line 63-col.4 line 6, col.42,line 66-col.43 line 12*); and
- a traffic card coupled to the cross connect module, the traffic card to process a set of traffic with the synchronized first and second set of data (*col.3 lines 42-52, col.3 line 63-col.4 line 6, col.42,line 66-col.43 line 12*).

Kidder et al fail to explicitly teach the second network process to synchronize the first set of data with a second set of data generated by the first network process before restarting upon determining a time period has not expired, the second network process to clear the first set of data upon determining the time period has expired, the time period beginning upon receiving a notification of death of the first network process. However, *Damani et al* teach rollback-synchronization among the processes wherein the inter-process communication (orphaned) data rolled-back if the time period expires (*col.3 lines 32-40, col.6 lines 44-59, col.7 lines 9-34, col.9 lines 11-13, col.9 line 54-col.10 line 14*). Furthermore, *Bishop et al* teach receiving notification that the engine has failed, the engine monitoring manager removes the engine from its list when the heartbeat period reaches timeout and eviction period upon notification of death expires; but if

the eviction time period does not expire, the engine recovers and its data is merged and updated with the engine monitoring manager (*col.52 lines 27-61, col.101 lines 15-25 and 52-58, col.102 lines 46-53, col.103 line 10- col.104 line 23, col.104 line 62-col.105 line 17, col.130 lines 59-61*).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the restart and rollback system of *Kidder et al* with *Damani et al*'s fault tolerant IPC message passing system and *Bishop et al*'s engine process notification system wherein a notification of a process death is sent to alert other processes, doing so, allows for the other processes to stop communication with and processing data from the dead process since the data may corrupt the system and compromise the integrity of the processes.

w. Regarding claim 13, *Kidder et al* with *Damani et al* and *Bishop et al* teach the network element of claim 12, *Kidder et al* further teach the element wherein the cross connect module comprises a first and second memory to host the first and second network process (*col.3 lines 42-52, col.3 line 63-col.4 line 6*).

x. Regarding claim 14, *Kidder et al* with *Damani et al* and *Bishop et al* teach the network element of claim 12, *Kidder et al* further teach the element wherein the traffic card comprises a set of processors to process the first and second set of data (*col.3 lines 42-52, col.3 line 63-col.4 line 6*).

y. Regarding claim 15, *Kidder et al* with *Damani et al* and *Bishop et al* teach the network element of claim 12, *Kidder et al* further teach the element wherein the cross connect module comprises: a first memory to host the first network process; a second memory coupled to the first memory, the second memory to host the second network process; and a third memory

coupled to the first and second memory, the third memory to store the first set of data, second set of data, and the synchronized set of data (*col.3 lines 42-52, col.3 line 63-col.4 line 6, col.42 line 66-col.43 line 12*).

(10) Response to Argument

- A. With respect to independent claims 1 and 28, Appellant argues that cited prior art *Bishop et al* fail to teach “clearing data upon expiration of a time period beginning upon receiving a notification of death”.**

Examiner respectfully disagrees. As explained in the final rejection, *Bishop et al* clearly teach a heartbeat period and an eviction period that reaches timeout wherein the heartbeat expiration indicates that the process is dead, then the eviction time period is the “period before the Engine Monitoring Manager component responds by removing the engine from its list” *col.101 lines 52-58, col.102 lines 56-3, col.103 lines 10-23, col.104 lines 62-66, col.130 lines 59-61*). Therefore upon notification of death by the heartbeat indicator, the eviction period is started for clearing data. The claim language states “clearing the first set of data...if a time period expires” this time period is the eviction period, wherein *Bishop et al* clearly discloses that that engine data is removed or “evicted” from the list when the eviction period expires. The claim further states “the time period beginning upon receiving the notification of death”, the eviction period begins upon expiration of the heartbeat period which is the indication and notification of the process's death (*col.101 lines 52-58, col.102 lines 46-64*). Applicant's arguments are therefore unpersuasive, and the rejection over these claims and their dependents is maintained.

- B. With respect to independent claims 1 and 28, Appellant argues that cited prior art *Bishop et al* fail to teach “synchronizing data after a restart if the time period does not expire”.**

Examiner respectfully disagrees. Furthermore, *Bishop et al* clearly teach the synchronization process achieved wherein if the eviction time period does not expire, the data from the engine is merged and updated with the engine monitoring manager (*col.52 lines 27-61, col.102 lines 46-53, col.103 lines 25-62, col.104 line 62-col.105 line 17*). The restart/recovery takes place when the process goes from being off-line to being on-line by sending a heartbeat, and the heartbeat being received before the heartbeat timeout period is over (*col.104 line 25-col.105 line 17*). Thus it is clearly from *Bishop et al's* disclosure that the merging and updating of data fulfills the functionality of the synchronizing claim language in that updates are merged with existing data after an engine restarts or recovers (*col.52 line 27-col.53 line 2*). Applicant's arguments are therefore unpersuasive, and the rejection over these claims and their dependents is maintained.

- C. With respect to independent claims 7, 16, 20, 24, 34, 39 and 43—Appellant argues that the rejection made under cited prior art *Fuchs et al* in view of *Bishop et al* fails to teach “if a first set of data is generated by the first network process before a time period expires, the time period beginning upon receiving by the second network process a notification of death of the first network process, then synchronizing by the second network process the first set of data with a second set of data”.**

Examiner respectfully disagrees. *Fuchs et al* clearly teach generating data before a non-responsive period expires, when the non-responsive period expires the error detection indicates the death of the process and a restart/recovery period is initiated (*col.9 lines 11-36, col.10 line 14-col.11 line 18, col.11 lines 44-53*). Upon the restart/recovery process, data received by the second network process is rolled-back in order to account for the errors that might have occurred during the fault in the first network process and the data is then

synchronized to bring first and second set of data up-to-date with modified information (*col.13 line 38-col.14 line 47*). Furthermore, as stated above, *Bishop et al* teach receiving notification that the engine has failed, the engine monitoring manager removes the engine from its list when the heartbeat period reaches timeout and eviction period upon notification of death expires; but if the eviction time period does not expire, the engine recovers and its data is merged and updated with the engine monitoring manager for synchronization of the data (*col.52 lines 27-61, col.101 lines 15-25 and 52-58, col.102 lines 46-53, col.103 line 10- col.104 line 23, col.104 line 62-col.105 line 17, col.130 lines 59-61*). Applicant's arguments are therefore unpersuasive, and the rejection over these claims and their dependents is maintained.

- D. With respect to independent claim 12—Appellant argues that the rejection made under cited prior art *Kidder et al* and *Damani et al* with *Bishop et al* in view of fails to teach “the first network process to generate a first set of data after restarting and the second network process to synchronize for itself the first set of data with a second set of data generated by the first network process before restarting upon determining a time period has not expired, the second network process to clear the first set of data upon determining the time period has expired, the time period beginning upon receiving a notification of death of the first network process”.**

Examiner respectfully disagrees. *Kidder et al* clearly teach the claim limitation of a first network process to generate a first set of data after restarting and the second network process to synchronize for itself the first set of data with a second set of data generated by the first network process before restarting (*col.3 lines 42-52, col.3 line 63-col.4 line 6, col.42 line 66-col.43 line 12*) by disclosing a fault tolerant system able to recovery failed processes by retrieving stored copies of the process data once the process is restarted and synchronizing the data from the failed process (*Abstract, col.3 line 35-col.4 line 45, col.6 lines 26-33*).

As stated in the final rejection, *Kidder et al* fail to explicitly teach the second network process to synchronize the first set of data with a second set of data generated by the first network process before restarting upon determining a time period has not expired, the second network process to clear the first set of data upon determining the time period has expired, the time period beginning upon receiving a notification of death of the first network process. However, *Damani et al* teach rollback-synchronization among the processes wherein the inter-process communication (orphaned) data rolled-back if the time period expires (*col.3 lines 32-40, col.6 lines 44-59, col.7 lines 9-34, col.9 lines 11-13, col.9 line 54-col.10 line 14*).

Furthermore as stated above, *Bishop et al* teach receiving notification that the engine has failed, the engine monitoring manager removes the engine from its list when the heartbeat period reaches timeout and eviction period upon notification of death expires; but if the eviction time period does not expire, the engine recovers and its data is merged and updated with the engine monitoring manager (*col.52 lines 27-61, col.101 lines 15-25 and 52-58, col.102 lines 46-53, col.103 line 10- col.104 line 23, col.104 line 62-col.105 line 17, col.130 lines 59-61*). These disclosures of *Kidder et al* in view of *Damani et al* and *Bishop et al* are more than sufficient for teaching the language used to describe the invention in the claim. Applicant's arguments are therefore unpersuasive, and the rejection over this claim and its dependents is maintained.

For the above reasons, it is believed that the rejections should be sustained.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

Respectfully submitted,

Kristie D. Shingles
Examiner, Art Unit 2444
/KDS/

/William C. Vaughn, Jr./

Supervisory Patent Examiner, Art Unit 2444

Conferees:

/William C. Vaughn, Jr./

Supervisory Patent Examiner, Art Unit 2444

/John Follansbee/

Supervisory Patent Examiner, Art Unit 2451